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ABSTRACT

The "Presidents' Study" is a collection, classification, and analysis of weekly student contact hours (WSCH) and full-time equivalent (FTE) faculty data gathered from a number of participating California community colleges. The data are treated by various formulae, ratios, and graphs to indicate loads, trends, and costs. Unfortunately, the nature of the data is highly volatile, and the statistical treatment results in dangerous oversimplifications. This document points out the technical errors made in the statistical analyses, particularly in relation to faculty work load computations. It also notes that: (1) WSCH data are based entirely on fourth week attendance, rather than on attendance for the entire course; (2) "normative FTE" is a myth; (3) the Study considers all faculty members to contribute equally to "cost" even though they are not equally expensive; (4) identically coded courses are not in fact identical; (5) the study considers total costs, rather than marginal costs; (6) the data lags by one full year; and (7) the study bases its enrollment projections on past enrollment figures, totally ignoring external events such as demographics, unemployment, and technological patterns. The author suggests possible improvements and illustrates how the ideas of the study, when applied with caution, can be used in an institutional research setting to complement managerial decisions. (DC)

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REFLECTIONS ON AND IMPLICATIONS OF THE CALIFORNIA COMMUNITY COLLEGES PRESIDENTS' STUDY AND ITS APPLICATION TO TWO IN-HOUSE STUDIES AT GOLDEN WEST COLLEGE

Presented at the
CCJCA Annual R&D Conference, Asilomar
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PREFACE

The California Community College Presidents' Study, now in existence for eight years, has recently gained considerable attention from community college educators--for good reason. What began as a harmless accounting of weekly student contact hours, full-time equivalent, and load among a handful of Northern California community colleges has become a Frankensteinian nightmare for a large number of the 72 colleges now involved by choice or decree. I dreamt one night of being chased by the four horsemen: WSCH, FTE, load, and %WSCH.

But beyond the headaches of reporting such data reflected by my light-hearted comments above lies a much more serious problem. Big brother is watching, and he might momentarily hit us little brothers over the head with our own toy.

What surprises me is that the colleges themselves--not the cost-effectiveness minded state--have come up with such a dangerously over-simplistic annual report. As I see it, we are inviting trouble. For one, we are, if such a report is used seriously, making an earnest effort to equalize our individualities--the ingredient that makes us so interesting.

The point is not that we have something to hide--we don't, couldn't and (I for one) wouldn't. Rather, the point is that the report does not present data that is sensitive enough for comparative purposes (assuming we even want to compare). The procedural variability in the collection of data from college to college is too great to expect comparable data. The Presidents' Study does not reflect a true picture of California community colleges either as a group or individually. We are looking at ourselves in a house of fun mirror.

In this paper I report some of the major problems I've encountered in trying to get a handle on the data required for reporting to the collection center. Included are reflections on the meaningfulness of the data and statistical analyses used in the Presidents' Study to (for lack of a better word) massage the data.

I conclude with a short report (my contribution to this conference) on two studies I conducted which use the (really, meritorious) intent of the Presidents' Study but remove (with some noted exceptions) the danger of college comparisons. But even in these more meaningful in-house studies, one must at all times be fully aware of the highly volatile nature of the underlying data and the unavoidable simplification due to ensuing statistical treatment of that data. After all, comparing division loads within a college (as I have done) is as bad as comparing college loads across the state. But the risk of misinterpretation is minimized--I think.

INTRODUCTION

The Presidents' Study was initiated by two community college educators, Manfred E. Mueller and Herbert H. Semans.* The study is a collection, classification, and analysis of weekly contact hours and full-time equivalent faculty data gathered from a number of California community colleges. The data is treated by various formulas, ratios, and graphs to indicate loads, trends, and costs.

Reaction to the study from community college educators has ranged from total acceptance and full participation to severe criticism and reluctant or no participation. Foothill College and the Community College of San Francisco, centers for gathering and compiling of this type of data, seem to have embraced the study. Other schools and districts, including the Coast Community College District, have criticized the study on several counts: lack of standardization in collecting data; arbitrariness of faculty load figures--a vital statistic in determing

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*Both are now retired but have maintained an active role in the study through "Semans-Mueller Associates," a research firm specializing in community colleges.

load factors; and the numerous non-traditional approaches to learning--all factors crucial to conducting meaningful statistical analyses.

Richard W. Brightman, Associate Dean of Instruction at Orange Coast College, recorded his opinion of Coast's participation in this study:

> Close examination of past issues of the report (Presidents' Study) reveals remarkable variation in data which will inevitably be used by college administrators and, heaven forbid, government officials to compare the relative work loads of faculty and enrollment activity in various CID classifications among community colleges.
>
> I'll cite just one of many horrible examples from the Fall, 1972, issue of the report. The faculty load figures for Music History and Appreciation range from 230 at Lassen to 2,375 at Santa Rosa. You'll have to talk pretty fast to convince me that data which vary to that extent are providing information of any usefulness in comparing colleges, programs, or anything else.
>
> Such comparisons must lead to conclusions that are as wishy-washy and useless as the data reported. Nevertheless, the comparisons will be made, much to the detriment, in my opinion, of colleges and programs which by sheer chance show data that are at variance with most of the rest.
>
> I recommend most strongly that we discontinue our participation in this project.

William Shawl, Golden West's Dean of Academic Affairs, vigorously attacked the study at a recent California Community Junior College Association convention. Shawl further elaborates:

> The problem with this study is that it equates load with weekly student contact hours. Contact hours is only one part of an instructor's load. Depending upon discipline and learning strategy involved, much more should be considered in comparing load. Paraprofessional assistance is not considered, for example, in making comparisons. This is not a faculty load study and should not be labeled as such. I fear the kinds of comparisons which might be drawn from such a study by those who consider only the numbers game.

The extent of criticism seems to be directly proportional to the amount of non-traditional commitment on the part of the institution. This is understandable. Non-traditional programs do not fit the traditional mold and are hard to pin down by methods of analysis that oversimplify the situation.

Since 1968, an increasing number of Northern California community colleges have participated in the Presidents' Study. In Southern California, participation began in 1972. In 1973, 41 Northern and 26 Southern California community colleges reported.

This temporary adoption of analytic procedures and methods of reporting results is not the type of research planned for GWC; many of the procedures in the statewide study are not acceptable and will be deleted and replaced with more appropriate ones. Longitudinal data will also be collected as time progresses in order to show trends in weekly student contact hours, full-time equivalents, enrollment in courses and division, and rapidity of closing enrollments.

Why is the Presidents' Study unacceptable as is? Consider the following reflections beginning with a quote from the fourth yearbook:

> The chief purpose of the Resource Books has been to provide the participating college presidents with their collected data in a comprehensive and usable form. This permits applications not possible if only part of the information is shared. Comparison is made easy by the formats consistently chosen in these books.[1]

Comparison may, indeed, be too easy--and faulty. It seems to me that one of the central problems of statistical work is to insure that

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[1] Resource Book IV, p. A-1

the statistics developed actually have meaning in the uses to which they are put. It is not possible to develop sound statistical analyses without considering the purpose and nature of the inferences to be drawn from the data. The Presidents' Study is an open offer to misinterpretation by state sources in that no explicit list of purposes is provided, and the types of inference which are to be examined utilizing the information appear only incidentally and inferentially from the type of arguments proposed at various stages.

The analysis and data supplied are not at all times relevant to the arguments advanced. Further, there are certain details of the argumentation and statistical presentation that suggest misuse of statistical inference. Lastly, it appears that little attention has been paid to whether data that is formally treated as comparable can, in fact, be said to arise from the same underlying population.

THE COST INDEX

Particularly with respect to the cost index I doubt as to whether the analysis can bear the weight intended of it. Consider the following:

> For reaching administrative decisions relating to departmental costs a detailed knowledge of the contents of a particular year's budget would not be required if teaching load information is available. Estimates of comparative costs are particularly important in building a new year's budget and may be applied during departmental budget review procedures.[2]

> The "inverted teaching load ratio" cost index should be adopted as a useful tool in correcting wrong attitudes

[2] Resource Book IV, p. E-26, par. 4.

about costs and in reaching administrative decisions where a rapidly-arrived-at approximate cost estimate is required.[3]

To equate overall costs in teaching a discipline with faculty cost is not entirely without foundation since the cost of faculty is the major cost in any particular situation. But in making comparisons for the purpose of allocating additional money to one discipline at the expense of another (else why compare diverse disciplines?) the "cost index" seems to lack the necessary delicacy.

A quick comparison of this inverted load ratio with a so-called true cost index shows discrepencies as great as 40%. Twenty-five percent of the values show discrepencies greater than 17%, with these discrepencies accounting for 22% of the WSCH in the chart. Consider the effect of this argument:

> Now, going to a one-college level, with a total of 100,000 WSCH (5800 ADA) and a discipline which is below average in cost, the total college budget would be $7.2 million, and a 1% WSCH discipline with a cost index of 80 would be operating at a savings of $4,000. The department involved could be allowed to spend this additional amount and still not rise above college-average cost.[4]

Suppose that argument to be applied to aeronautics (RB-IV, p. E-25) which shows an inverted load ratio of 87 but a true cost index of 104. The effect would be to increase the expenditures of a discipline that is already slightly above average. It is to be anticipated that low cost index disciplines will be quicker to acquiesce in such an analysis than high cost index ones with a net pressure to higher expenditures. Even

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[3] loc. cit., par. 6.

[4] loc. cit., par. 5.

assuming that the true cost is a valid determinate for total expenditures in a discipline, it is evident that inverted load ratio is not.

Let us go a step further and ask whether all disciplines ought to cost the same per WSCH. (Whether that cost is faculty cost, i.e., inverted load ratio or budget cost, "true cost"). It does not take much imagination to advance reasons why, for example, nursing ought to cost more than history or journalism than physical education.

How are we to use these indices in the face of the obvious differences between disciplines? The answer (which is supplied in this study only by implication) is to use a "Normative Cost Index" which would be constructed by taking into account the "normal" load for a discipline. The statistics available suggest that the statewide average load in any CID would be used as the "normal" load. Postponing for the moment the question of whether the statewide averages have enough consistency to be used as norms, let us ask the question whether total budget cost in any form is a valid tool for allocating funds, particularly since many programs in community colleges are mandated by requirements of a more or less permanent nature.

For this reason some level of funding will be required for many of the so-called higher cost disciplines. Thus it is necessary to consider marginal adjustments of these programs. The appropriate costs to be examined are not total costs but marginal costs, in particular the marginal opportunity costs (that is to say, what is the most valuable activity that cannot be performed if this one is to be performed?) The information we most desire is, given a budget constraint, how can we spend the last available dollar in a way that will provide the maximum

return. The cost index gives no clue to such marginal cost analysis at all. I do not intend to deny that cost controls are valid and useful management tools, but rather that any cost control requires a fineness not available with the statistical data in the Presidents' Study. It is difficult to shave with an axe.

TREND ANALYSES

A further purpose of this study is trend analysis, presumably for the purpose of projecting enrollments. "It is logical to expect the Southern California community colleges to grow 5% more in the coming year."[5] A cursory reading of this section reveals that the trend analysis is purely historical and no attempt is made to correlate trends to external events. It is precisely the notion of projection of enrollments that seems to be most useful, but if the past were an accurate indicator of the future we could all get some graph paper and make our fortune on the stock market. Any serious attempt at enrollment projection will have to concern itself with demographics, unemployment, technological patterns, and all the other messy and difficult aspects of the real world.

LOAD

That the theoretical orientation does not appear suitable to the problems the Resource Book is apparently trying to solve is the most

[5] Resource Book V, p. D-2, par. 2.

serious criticism. But it is also significant that a number of technical errors appear to have been made in the statistical analysis. Consider first the use of graphs in presenting the data pertaining to load.

> By inspection some of these values may be judged to be non-representative. . .So an unbiased means must be used to eliminate most of these non-representative values. For this report, it was decided to limit the points chosen from the array of load values to 40 (occasionally 10, 14, or 20) by finding the minimum FTE value which would provide the necessary number of figures. Most nonrepresentative values are associated with small FTE figures. Now, if some very high or low values for teaching load still remain in the chosen set, they are entitled to remain because they are not based on a very low FTE value. Unfortunately, it follows that the data from the smallest colleges have thus been given less consideration.[6]

This statement exemplifies two types of statistical error. The implication here is that it is possible to decide which values are "non-representative" by inspection. If the numbers rejected do indeed arise from a population different than the others, the presumption ought to be that other values also arise from different populations and ought to be lumped with caution, even if they do not so obviously bear different markings. Contrarily, if the numbers rejected are in fact from the same statistical population, then no matter how "unrepresentative" they are they must be included. Since the numbers rejected are all of small FTE, they could be included with a weight by FTE to minimize any distortion. In fact, it seems mandatory to do so not simply with these "non-representative" values, but with all the values included. This is another error, for it seems that all load measurements have been treated

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[6] op. cit., p. E-2, par. 4.

as identical regardless of the underlying FTE, a method of analysis which seems completely unjustifiable. The main motivation for this seems to have been that the graphs were drawn by hand and to use variable weighting would have been time consuming. Further examination of the text reveals a possible explanation for such a cavalier treatment of the data: "A nice random set is straight but not vertical."[7]

What does random mean? Apparently, not the irregularity in a series of measurements, which may occur with any form of frequency distribution. Considering that the function of probability ruled paper is to straighten out a Gaussian cumulative error curve and that this straightness is the test for a Gaussian (also called normal) population, I would suggest that we assume these values to be drawn from a normal population, and, therefore, the sets ought to be straight. . .presumably, the "unrepresentative" values are those which fall far from the "proper" straight line. In fact, whether the underlying population of the load values can be treated as normal is a question that needs to be answered, and the answer would be obtained by measuring the goodness of fit of a straight line fitted to the graphed data. Was this casual attitude toward the treatment of the data matched by an equally careless attitude toward the necessity of proper controls on the acquisition and suitability of data?

[7] op. cit., p. E-3, par. 4.

WSCH

Another consideration: the WSCH data. These are based entirely on fourth week attendance. Yet, from the standpoint of effectiveness of expenditure and from the standpoint of actual faculty workload it seems necessary to consider the attendance for the entire term of the class. Manifestly, a class with a high drop rate accomplishes less, all other things being equal, than one in which relatively more of the students finish. From the standpoint of actual work done, the time of student withdrawl is also significant. Investigating whether a reporting procedure designed to take these data into account would show significant differences from the present methods is worthwhile.

FTE

FTE is equally controversial. Perhaps because it is the weakest link in the chain. FTE is directly related to faculty workload. And faculty workload is notoriously irregular across colleges--and within colleges. How do we arrive at normative FTE when the following (and I list only some) variations run gamut:

- Overlapping classes (three or four classes overseen by one instructor at the same time, e.g., Auto Tech)
- Forum classes (some colleges give double credit, some don't)
- Team teaching--what about coordination?
- Performance time
- Different workload ranges (e.g., at GWC Tech = 24-30 hrs, Math = 15-16 hrs, Cosmetology = 22-35 hrs)
- Coaching

- When is a lab a lab? Different lab weights are given at GWC for:
  - chemistry/physics
  - A-T math, geology, biology
  - technology
  - learning center
  - "open" lab
- Open entry, open exit courses (e.g., secretarial science)
- Media center
- Heavier lecture at beginning of a course and almost totally lab at the end (e.g., cosmetology)
- Special education faculty who "team teach" with regular faculty (e.g., hearing impaired)
- TBA
- Independent study
- TV courses
- Work experience
- Administration of justice short-type courses (a real challenge)

The variance in faculty assignments just on our campus defies analysis. For three yeras I've made a conscientious (and I think valiant) effort to unscramble the FTE assignments in our Health Science Division, to no avail. Yet, not from a lack of cooperation from the division chairperson, nor the Dean of Academic Affairs. The nature of faculty assignment there is so involved (lecture, lab, A-T lab, large group sessions, small group sessions, CAI, and field work) that I finally realized I was trying to bang a square peg into a round hole. We all felt better when we finally "guesstimated" the FTE for that division.

There are further considerations: What about paraprofessionals? They are an integral part of our media-oriented courses. Most of our paraprofessionals have degrees comparable (and some beyond) those of the

and faculty are indeed certificated employees on a classified schedule. If we were to "throw in" these as additional FTE, our load factor would drop drastically.

Why consider all faculty members to contribute equally to "cost" if in fact they are not equally expensive? We give up a lot when we try to simplify the analysis. Why only day college? Particularly since many day students round out their schedule with night classes. Why not faculty contact hours? Would the differences by significant?

One would hope that these problems produce insignificant amounts of variation, but they are worth looking at.

CID CATEGORIZATION

A real problem is comparability of CID-indentical courses that are not in fact identical. Similar course names may reflect different needs, objectives, values, and teaching methods. It is equally true that one CID number may cover quite a diversity of different courses. Mathematics, general, CID 1701 for example, covers mathematics from high school algebra, trigonometry to calculus. How much these courses have in common is problematical. This syndrome appears to be common to several of the --01 CID numbers.

MISCELLANEOUS REFLECTIONS

To comprehensively critique the Presidents' Study, one needs to write a tome perhaps as thick as the study itself. But I shall conclude this part with some after thoughts:

Granting the validity of the study as a whole (not an uncontroversial choice), the information presented seems to be just that part of it which is least useful. The data lags by one full year. The dilemma here illustrates the drawbacks of hand reduction of data. If the data were based on the use of a computer, the most time consuming part would be entry of the data. Thereafter, prewritten programs could develop any analysis necessary. It should not be a matter of more than a week or two following receipt of all data to the completion of the entire analysis package. If, in addition, the data were sent in the form of computer ready forms, e.g., punched cards, then the report would be ready, essentially, as soon as all data were received. Specifically, the graphs presented can be drawn under computer control, the WSCH tables can be written by computer, and all raw data can be displayed by computer. There seems to be no reason why an annual resource book could not be ready for the printer a few days following receipt of all necessary data from the other colleges.

The social and economic make up of the community, demographics, the philosophy, organizational structure, and available facilities of each college affects all the variables in the Presidents' Study and skews the results accordingly. Can we compare an urban college in the middle of Los Angeles City with a suburban college in a bedroom community? The size and number of large forum-type facilities has a definite effect on the number of WSCH a college can accommodate. Result: The load increases.

Why the north-south split? (Not the water issue again!) I like the large-small split. It ought to be extended to finer strata: say, every 25,000 WSCH or urban, suburban, and rural, or both.

It is indeed a challenge to me, as Director of Research, to wade through the explanatory, subexplanatory, superexplanatory remarks and notes floating around in the Resource Books notwithstanding the single and double asterisked footnotes that point to exceptions, exemptions, exclusions, qualifications, limitations, and modifications. To expect college presidents to follow the intricacies displayed borders on the naive. When it comes right down to it, one more than likely hears the patriarch ask, "How does our load stack up against De Anza?" (Do I dare respond: "What difference does it make?")

The fear of misusing the Presidents' Study is real! The first time I conducted the study, our Health Science Division came in with a load of 298 (college average = 601). I was asked to explain (defend?) these statistics in a division meeting full of concerned and even angry instructors. I chose not to defend the study and as quickly as I could pointed out its severe limitations (and copped-out by blaming our participation on the boss). Just as quickly I reminded them that the quality of their program was reflected by the fact that their graduates have always done exceedingly well on the State Nursing Examination. Nevertheless, the division chairperson called me in her office a few days later and asked in a concerned tone, "How can we increase our load?" Can we expect less concern from state officials with notorious track records of cost-effectiveness philosophy?

Now it is possible to believe that these problems are trivial, taken as a whole, or that they are highly significant. But it is necessary to come to some decision about them before we can adequately discuss the usefulness of the Presidents' Study as an analytical tool to examine the

appropriateness of various budgeting and educational strategies, and, as Brightman stated, comparisons by government officials. They key factor binding all of these problems together seems to me to be a focusing on number-crunching approaches at the expense of analytical clarity, logical rigor, and causal relationships. There appears to be a dangerous tendency to throw numbers in the pot and stir them in the hope that something useful will come up.

I met Pete Mueller two years ago when I visited him at his home in San Francisco. As a novice research director in charge of conducting the Presidents' Study at my college, I met Pete with but one word: "Help!" He was a gracious host and spent that entire evening explaining the Presidents' Study. I was then and still an impressed by the enormity of the study he and Semans have undertaken. Their dedication and effort to bring about some order and coordination of important data across the state's community colleges is to be commended. Add to this the fact that the analysis was conducted by hand, using only a desk calculator and the full impact of the effort is clear. Indeed there <u>are</u> some good ideas in the study and used for <u>in-house</u> analyses certain salient facts can be gleaned that can assist college management in making sounder decisions. But always with the limitations of this type of analysis clearly in mind. Note the preface from my first in-house study at GWC:

> When statistics is used to model a real-life situation, certain (usually very restrictive) assumptions need to be made to quantify circumstances. Then, further assumptions are made in treating the data statistically. Thus, in his effort to analyze a situation, the statistician hinders it by simplification. This trade-off is unfortunate but ever present, especially in behavioral science studies. The results yielded by any statistical model, including this study must be viewed with an eye toward the underlying

assumptions. Approached with these cautions, the data displayed here can be both informative and useful.[8]

This is the approach I took in compiling my study: "Implications of the Presidents' Study for Golden West College, Fall, 1974." This was a first effort to glean out of the WSCH, FTE data what was happening at Golden West College. Needless to say, that study was received with mixed reactions (see page 14 for Health Science Division reactions) and indeed many of my critical comments reflect these reactions. But, we were able to get a rough picture of several trends in WSCH, FTE, and load across our eight divisions.

THE 1974 AND 1976 IN-HOUSE STUDIES AT GWC

Table 1 (all the following tables and graphs will be displayed on the overhead projector and are not included in this report) displays a first cut at the data for Fall, 1974.

Certainly we can get a picture of what's happening in the different disciplines by scanning the %WSCH. Social Science, Letters, and Education seem to be the most "popular" disciplines. If we pair this popularity with FTE--assuming equitability of faculty workload--we find that "Education" with a load of 744 may need some more staffing. Indeed, two faculty members were subsequently added to the Physical Education Department. But the decision was not based solely on these figures. The Physical Education Division chairperson requested additional faculty members by presenting a case based on the needs of that division. It's nice that the two concurred.

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[8] Segalla, Angelo, "Implications of the Presidents' Study for Golden West College, Fall, 1974"

Table 3 pushed the analysis further than I really wanted by conceding to requests to compare GWC with OCC and state.

To control at least some of the variation, I displayed the data for common CIDs only. That is, we picked off only those disciplines that matched ours, CID by CID and recalculated all hundred CID loads from the state data provided in Resource Book IV. With much trepidation, I present this table as a "comparison" of GWC, OCC, and statewide loads. The large load at both Coast Community Colleges as compared with state load may lead us to conclude--with caution--that this may be due to the large forum facilities in which psychology is taught at both schools.

Figure 2 pushes on a bit further, displaying the load factors (again for common CIDS only). If comparisons were valid, this would indicate the Coast Community College District as being super efficient in its allocation of faculty versus WSCH.

Table 4, perhaps the most valid, compares the differences in popularity of these commonly taught disciplines. Note that psychology at the Coast Community College District seems to be more popular than statewide. (8.18% vs. 4.89%)

Frankly, I find myself being pulled as if by a magnet to make all kinds of comparisons from these tables and figures, the sirens of the Odessy revisited, yet my previous criticisms are the bonds that hold me.

In a second part of the study, I presented Figures 3 and 4 for a birds-eye view of the WSCH and %FTE for Fall, 1974, subdivided by division. Social Science, Math/Science, Fine Arts, and Communications make up 2/3 of the total WSCH at GWC while using 60% of the total FTE. And so on, and so on.

Table 5 displays the WSCH, %WSCH, FTE, %FTE, load, and cost index for the entire Business Division and its CIDS. Then each CID was further broken down into its constituent courses (not shown here). Each chairperson was supplied this information to use as they saw fit.

Then the big splash. Figures 5 and 6 displayed the loads by division (this is just about when I was called in by the Health Science Division). I offer these figures with no comment. . .

I presented here only a few of the analyses from the (56 page) study "Implications of the Presidents' Study for Golden West College, Fall, 1974," but enough to illustrate that Mueller and Semans ideas, when applied with caution, can be used in a research setting to complement managerial decisions. This in-house analysis, though far from stellar, makes much more sense to me than overall state comparisons. For in the final analysis when we compare ourselves to others, the tempting response is: So what? I think individuality should be fostered not stultified. In view of this philosophy, and taking heed of my own comments on statewide comparisons, I conducted a new study this year that did not use any state comparative analyses.

Let me conclude by describing the essence of this new study. We (painfully) collected WSCH, and FTE data for the past eight semesters (over 5,000 data points): Fall, 1972, to Spring, 1976, for <u>both</u> day and evening college. Each course offered at GWC in those eight semesters in either college was classified by CID, division, etc., paired with an FTE, WSCH figure and recorded in our computer (via APL). We are now in the process of analyzing this enourmous data set for longitudinal trends. We expect to display over 26,000 data in over 350 tables and (God forbid) a 400-page tome. But it's important to realize that this set-up will allow

for just about any cross-cut at the data via computer. Should the Dean of Academic Planning want to see, for example, a trend analysis for any given CID, hundred CID, department, or division for the past eight years plus a projection for the next semester, he can use the computer to do so quickly and easily. For future semesters, a similar course by course analysis is planned.

For example, Table 1 (not the same Table 1 as above) displays the collegewide WSCH, FTE, and load for combined day and evening colleges from the Fall, 1972, semester to the (projected) Fall, 1976, semester. Figure 1 displays these data graphically. The analysis begins here, continues on to examine:

- day college
- evening college
- total college by all divisions
- day college by all divisions
- evening college by all divisions
- Business Division
- Business Division departments
- Business Division individual CIDS
- Communications Division
- Communications Division departments
- Communications Division individual CIDS
- Fine & Applied Arts Division
- Fine & Applied Arts Division departments
- Fine & Applied Arts individual CIDS
- Health Science Division
- Health Science Division departments
- Health Science individual CIDS
- Math/Science Division
- Math/Science Division departments
- Math/Science individual CIDS
- Physical & Recreational Education Division
- Physical & Recreational Education Division departments
- Physical & Recreational Education individual CIDS
- Social Science Division
- Social Science Division departments
- Social Science Division individual CIDS
- Technology Division
- Technology Division departments
- Technology Division individual CIDS

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